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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/785,983	02/26/2004	Hiromitsu Uchida	1163-0496P	2640

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EXAMINER	
HAM, SEUNGSOOK	
ART UNIT	**PAPER NUMBER**
2817	

DATE MAILED: 08/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary	Application No.	Applicant(s)	
	10/785,983	UCHIDA ET AL.	
	Examiner	Art Unit	
	Seungsook Ham	2817	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 June 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,6-11 and 14-16* is/are rejected.

7)☐ Claim(s) *4,5,12 and 13* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 June 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *2/26/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

Claim 3 is objected to because of the following informalities:

In claim 3, line 3, "said plurality of resonant circuit" and "said transmission line" should be corrected to –said plurality of resonant circuits" and "said transmission lines"--, respectively. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 8, 9, 11, 14 and 15 are rejected under 35 U.S.C. 102(a) as being anticipated by Uchida et al. ("Dielectric Resonator Elliptic-Function Band Rejection Filter with External Coupling Waveguide").

Uchida et al. (figs 1 and 2) discloses an identical band rejection filter with attenuation poles. It should be noted that the coupling slots between the rectangular waveguide and a jump-coupling/external coupling waveguide provides capacitors (see fig. 2).

In response to the applicant's argument (filed on 6/30/05) that Uchida et al. failed to discloses "a plurality of parallel resonant circuits...and a jump coupling circuit ...to each other" (see REMARKS, p. 12, second paragraph), the examiner disagrees.

Uchida et al. (figs. 1 and 2) clearly shows a plurality of parallel resonant circuits L1&C1, L2&C2 each connected through separate transmission lines (see fig. 2, "one-quarter or three-quarter-wavelength waveguide section"), and a jump coupling circuit +J, for coupling two non-adjacent parallel resonant circuits. Applicant failed to point out the differences between the applicant's **claimed** invention and the Uchida et al. reference.

Claims 1, 2, and 6 are rejected under 35 U.S.C. 102(a) as being anticipated by Uchida et al. ("Ku-Band Elliptic-Function Band-Rejection Filter with Dielectric Resonators").

Uchida et al. (figs. 1 and 2) discloses a band rejection filter with attenuation poles comprising: a plurality of series resonant circuit (see fig. 2) connected in series via a plurality of transmission lines each having a quarter wavelength; and a jump-coupling circuit (external coupling waveguide) for coupling two of non-adjacent series resonant circuits. It should be noted that the coupling slots between the rectangular waveguide and a jump-coupling/external coupling waveguide provides capacitors.

In response to the applicant's argument (filed on 6/30/05) that Uchida et al. failed to discloses "a plurality of series resonant circuits with one set of end terminals having a common connection...and a jump coupling circuit ...to each other" (see REMARKS, p. 13, first and second paragraphs), the examiner disagrees.

Uchida et al. (figs. 1 and 2) discloses a plurality of series resonant circuits L1&C1, L2&C2 each connected through separate transmission lines J12 (note that J12 are a quarter wavelength transmission line (see p. 106, paragraph "2"), and one set of

end terminals having a common connection J2; and a jump-coupling circuit J1 coupling paris of non-adjacent series resonant circuits.

> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Atia (US '785).

Atia (figs. 2 and 2a) discloses a filter comprising: a plurality of series resonant circuits 40-46, 48-54 (see fig. 6b, C1, L1, L2, C2) with one set of end terminals having a common connection (see fig. 2, the transmission line connecting the dielectric resonators 46 and 48) and another set of end terminals 20, 30; each connected via separate transmission lines 70 each having a quarter wavelength; a jump-coupling circuit includes a quarter wavelength transmission line 60. it should be noted that a gap capacitor is existed between a series transmission line 70 and the jump-coupling transmission line 60. Thus, the jump-coupling circuit includes a capacitor and another capacitor and a transmission/microstrip line 60 located between them.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 8, 9, 11, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uchida et al. ("Ku-Band Elliptic-Function Band-Rejection Filter with

Dielectric Resonators") in view of Uchida et al. ("Dielectric Resonator Elliptic-Function Band Rejection Filter with External Coupling Waveguide").

Uchida et al. ("Ku-Band...Resonators") is applied as above. Uchida et al. ("Ku-Band...Resonators") does not show each dielectric resonator being a parallel resonant circuit. However, designing a dielectric resonator to a parallel resonant circuit is well known in the art. Uchida et al. ("Dielectric Resonator...Waveguide") discloses a dielectric resonator (fig. 1) forming a parallel resonant circuit C1&L1, C2&L2 (see fig. 2).

It would have been obvious to one of ordinary skill in the art to form the dielectric resonators into parallel resonant circuits in the device of Uchida et al. ("Ku-Band...Resonators") since such design technique is well known in the art as shown by Uchida et al. ("Dielectric Resonator...Waveguide") and it requires only a routine skill in the art.

Claims 3 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Atia (US '785) in view of Wakino et al. (US '096).

Atia does not show the plurality of series resonant circuits is formed of microstrip line structure. However, such design technique is well known in the art. Wakino et al. discloses a series resonant circuit an be formed in a dielectric resonator (figs. 3(a) and 4(a)) or a microstrip line resonator (fig. 14). Therefore, it would have been obvious to one of ordinary skill in the art to use a microstrip line type series resonant circuit as the series resonant circuits in the device of Atia since both series resonant circuits are functionally equivalent and well known in the art as shown by Wakino et al. (figs. 3(a) and 14).

Claims 8-10, 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hong et al. ("Microstrip Filters for RF/Microwave Applications") in view of Miyazaki et al. (US '073) or Uchida et al. (JP 07-094908).

Hong et al. (figs. 6.5-6.7) discloses a band rejection filter comprising; a plurality of parallel (see fig. 6.7) resonant circuits connected through separate transmission lines each having a quarter wavelength (see fig. 6.5).

Hong et al. does not show a jump-coupling circuit for coupling two non-adjacent parallel resonant circuits. Miyazaki et al. (fig. 22) discloses a similar filter device having a jump-coupling circuit having a transmission/microstrip line 15 coupling two non-adjacent resonators 10a, 10d. Moreover, the both ends of the transmission line 15 provides a gap capacitor between the transmission line 15 and a resonator 10a, 10d.

Uchida et al. (figs. 1(a)-1(f) also discloses a similar filter device having a jump-coupling circuit having a transmission/microstrip line 27 or 37 (see fig. 4(a)) coupling two non-adjacent resonators 5, 7. Moreover, the both ends of the transmission line 27provides a gap capacitor between the transmission line 27 and a resonator 5, 7 (see abstract).

It would have been obvious to one of ordinary skill in the art to provide a jump-coupling circuit between two non-adjacent resonators in the device of Hong et al. to provide an attenuation pole as taught by Miyazaki et al. (col. 17, lines 57-67) or Uchida et al. (see abstract). Providing the resonant circuits on a dielectric substrate is well known in the art, and it requires a routine skill in the art.

Allowable Subject Matter

Claims 4, 5, 12 and 13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Seungsook Ham whose telephone number is (571) 272-2405. The examiner can normally be reached on Monday-Thursday, 8:00AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pascal can be reached on (571)-272-1769. The fax phone number for the organization where this application or proceeding is assigned is **571-273-8300**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Seungsook Ham
Primary Examiner
Art Unit 2817

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